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ABSTRACT

After a discussion of the Arabic stress rules, an experiment is described which looked at two questions: (1) how consistent Saudi students of English as a second language (ESL) are in avoiding the assignment of stress to English final syllables with a consonant-vowel-consonant-consonant (CVCC) configuration, where Arabic stress rules agree with English stress rules; and (2) how this linguistic behavior bears upon the Contrastive Analysis (CA) Hypothesis. For the study two groups of third and fourth year ESL students in a Saudi university were asked to read 33 nonsense words which had English sounds and typical English syllable structure. Stress errors generally were found to be due to interference between Arabic and English, that is, the students transferred the Arabic rule to English, with the exception of the CVCC pattern. Their CVCC errors did not follow the Arabic stress rule, even though in this case it could be transferred to English. The consistency of this pronunciation pattern is cited as a counterexample to the CA Hypothesis. Two explanations are offered, one based on the syllable structure of CVCC sequences in Arabic and one based on morphological structure. (MSE)

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# THE STRESSING OF FINAL SUPERHEAVY SYLLABLES BY SAUDI LEARNERS OF ENGLISH: IMPLICATIONS FOR THE CONTRASTIVE ANALYSIS HYPOTHESIS

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## 1. Introduction

From my experience teaching English to Arabic-speaking students and listening to Arabs speaking English, I have noticed a general tendency among them to apply Arabic stress patterns in their English pronunciation, even in cases where pronunciation errors result. English teachers of Arab students must have noticed such pronunciation errors as (´ indicates primary stress in the syllable above which it appears):

(1)

| | | |
|---|---|---|
| éleven | for | eléven |
| bégin | | begín |
| dictínnary | | dictionary |
| cucúmber | | cúcumber |
| telephóne | | télephone |

However, Arab speakers of English, particularly those who have not yet reached a stage of fluency in the language, do not seem to apply the Arabic stress rules to English words ending in CVCC (where C = consonant, V = vowel) syllables, even in cases where these syllables are stressed in English. The following English words are normally stressed on the initial syllable by these speakers, whereas they are stressed on the final syllable by native speakers:

(2) percent
insist
abrupt
descend

This is particularly interesting since the stress rules of Arabic, as will be shown below, systematically assign stress to final CVCC (superheavy) syllables. Consider, for instance:

(3) katábt 'I/you m.s. wrote'
mahálll 'place'
etc.

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In this paper, I will examine:

(i) How consistent Saudi students of English are in avoiding the assignment of stress to final CVCC syllables in English, and (ii) How this linguistic behavior bears on the Contrastive Analysis Hypothesis.

Before discussing the results of the experiment introduced in the next section, a look at the Arabic stress rules is in order.

The rules of stress assignment in the Arabic dialects east of the Maghreb are similar, with the exception of Egyptian Arabic. Although this study is based on evidence from the pronunciation of Saudi Arabic speakers, the conclusions drawn, unless otherwise indicated, should be applicable to speakers of such Arabic dialects as Greater Syrian, Iraqi, and other dialects of the Arabian Peninsula (see Abdo 1969, Al-Mozainy 1981).

The stress rules of these dialects are as follows:

1. Stress falls on a final syllable of the form CVCC, $C\bar{V}C$ (superheavy syllables), or $C\bar{V}$ (where C = consonant, V = short vowel, and $\bar{V}$ = long vowel).
   E.g. maḥáll 'store, place'
   ḥayā́ 'life'
   barī́d 'mail'
2. It falls on the penultimate syllable if no final syllable of the forms mentioned above exists and if
   a. the penultimate is heavy (CVC or $C\bar{V}$)
      E.g. katábna 'we wrote'
      makā́tib 'offices'
   b. or it is the first syllable in the word.
      E.G. kátab 'he wrote'
      ṣábi 'boy'
3. Otherwise, it falls on the antepenult.
   E.g. kátabu 'they wrote'
   báladak 'your country'

2. The Experiment

An experiment was made in which two groups of speakers were asked to read 33 nonsense words which had English sounds and typical English syllable structure in two different orders. The two groups of speakers were composed as follows:

Group A. The three most fluent second year English majors at the College of Education in Abha, Saudi Arabia. These students have finished between 27 and 33 credits of English language courses at the college. They were selected for two reasons. First, their familiarity with the English spelling system and syllable structure enables them to read the words of the experiment without much difficulty. Second, their mastery of English has not yet reached a point where they would apply English stress rules without interference from Arabic. Interference from Arabic is expected to be stronger and more noticeable in the case of these students than in the case of the other group.

Group B. The three most fluent fourth year English majors at the same college, whose TOEFL scores ranged between 470 and 495. These students have finished 60-70 credit hours of English at the college. One of these (Speaker 5) took an intensive English course for English majors at King Saud University in Riyadh before taking any English at Abha. The other two (Speakers 4 and 6) each spent two years at a British university before transferring to Abha. These students are expected to show a better command of English stress patterns, with less interference from Arabic, than those in Group A.

The words were selected in such a way as to represent different English sound combinations and syllable structures but all ending in CC clusters. No monosyllables are included because their stress pattern is uninteresting for purposes of this study. A list of these words, showing the two orders in which they were read by the subjects, is included in the appendix. The words were tape recorded and analyzed. A discussion of the results follows.

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For convenient reference, the words of the experiment are divided into three groups:

1. Bisyllabic words:

   sadent, flintelk, frintemp, teland, kinters, kinterp, sledent, kiltald, spinnist, scantered, lodened, fertent, kintesp

2. Trisyllabic words with a heavy (CVC) penult:

   dagusters, dagustant, sacantamp, telandism

3. Trisyllabic words with a light (CV) penult:

   bacadant, thermodint, bacadart, faladent, braganist, feledished, feledisk, redeburk, fadanork, panarint, feledimp, delemark, pitimirk, qendorens, dafonilt, deledirp.

The pronunciation of these words by the six subjects is recorded in Tables 1, 2, and 3 below.

Table 1

| | Group A | | | Group B | | |
|---|---|---|---|---|---|---|
| | Speaker 1 | Speaker 2 | Speaker 3 | Speaker 4 | Speaker 5 | Speaker 6 |
| sadent | sa̋dent | sa̋dent | sa̋dent | sa̋dent | sa̋dent | sa̋dent |
| | • | • | • | • | • | • |
| flintelk | flíntelk | flíntelk | flíntelk | flíntelk | flíntelk | flíntelk |
| | • | • | • | • | • | • |
| frintemp | frínteṃp | frínteṃp | frínteṃp | frínteṃp | frínteṃp | frínteṃp |
| | • | • | • | • | • | • |
| teland | téland | telā̋nd | téland | téland | telā̋nd | telā̋nd |
| | telā̋nd | • | • | telā̋nd | • | • |
| kinters | kínters | kínters | kínters | kínters | kínters | kínters |
| | • | • | • | • | • | • |
| kinterp | kínterp | kintérp | kínterp | kínterp | kínterp | kínterp |
| | • | kíntrep | • | • | • | • |
| sledent | slédent | slédent | slédent | slédent | slédent | slédent |
| | • | • | • | • | • | • |
| kiltald | kíltald | kíltald | kíltald | kíltald | kíltald | kíltald |
| | • | kíliteld | • | • | • | • |
| spinnist | spínnist | spínnist | spínnist | spínnist | spínnist | spínnist |
| | • | • | • | • | • | • |



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| | | | | | | |
|---|---|---|---|---|---|---|
| scantered | scántered | sacantérd | scántered | scántered | scántered | scántered |
| | • | scíntered | scántred | • | • | • |
| lodened | lódened | lódened | lódened | lódened | lódened | lódened |
| | • | • | • | • | • | • |
| fertent | fértent | fértent | fértent | fértent | fértent | fértent |
| | • | • | • | • | • | • |
| kintesp | kíntesp | kíntesp | kíntesp | kíntesp | kíntesp | kíntesp |
| | • | kíntsep | • | • | • | • |

In the pronunciation of the words in Table 1, the two groups of subjects exhibited similar stress patterns. The words sadent, flintelk, frintemp, kinters, sledent, kilteld, spinnist, scantered, lodened, fertent, and kintesp were invariably assigned initial (penultimate) stress by all subjects. In the remaining two words of this subgroup, the two groups of speakers behaved differently. The word teland was assigned initial stress three out of six times by the Group A subjects and one out of six times by the Group B subjects. The word kinterp was assigned initial stress by two subjects in Group A and by the three subjects of Group B.

Table 2

| | Group A | | | | Group B | |
|---|---|---|---|---|---|---|
| | Speaker 1 | Speaker 2 | Speaker 3 | Speaker 4 | Speaker 5 | Speaker 6 |
| dagusters | dágusters | dagústers | dágusters | dágusters | dágusters | dágusters |
| | • | • | dagústers | • | dagústers | • |
| dagustant | dágustant | dagústant | dagústant | dágustant | dagustánt | dágustant |
| | • | • | dágustant | • | dágustant | • |
| sacantemp | sacántemp | sacantémp | sacántemp | sacantémp | sácantemp | sácantemp |
| | sacantémp | • | • | sacántemp | sacántemp | • |
| telandism | telándsim | teledánsim | telándism | telándism | telándism | telándism |
| | telándism | telándism | • | • | • | • |

One of the main differences in the pronunciation of the words in Table 2 between the two groups is the stronger tendency among speakers of Group B to stress the initial syllables of these words. Another noticeable phenomenon is the stressing of the penultimate syllable of telandism with a lengthening of the vowel in that syllable by all speakers of both groups.

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Table 3

| | Group A | | | Group B | | |
|---|---|---|---|---|---|---|
| | Speaker 1 | Speaker 2 | Speaker 3 | Speaker 4 | Speaker 5 | Speaker 6 |
| bacadant | bácadant | bácadant | bácadant | bácadant | bácadant | bácadant |
| thermodint | thérmodint | thérmodint | thérmodint | thérmodint | thérmodint | thérmodint |
| bacadart | bácadart<br>bacadárt | bacdárt | bacadárt | bacadárt | bácadart | bacadárt<br>bácadart |
| faladent | fáladent | fládent | fáldent | fáladent | fáladent | fáladent |
| braganist | brágnist<br>brághanist | brágnist<br>brághanist | brághanist | brághanist | bráganist | brághanist |
| feledished | féledished | fledshed | féldished | féledished | féldshed<br>fledshed | féledished |
| feledisk | féledisk | fledisk<br>féledisk | féldisk<br>féledisk | féledisk | fledisk | féledisk |
| redeburk | redbúrk<br>redeburk | redbúrk<br>redburk | redburk | redeburk | redbúrk | redeburk<br>redbúrk |
| fadanork | fádanork<br>fadanórk | fadanórk | fadanórk | fádanork | fadanórk<br>fádanork | fádanork<br>fadanórk |
| panarint | pánarint | pánarint | pánarint | pánarint | pánarint | pánarint |
| feledimp | féledimp | fledimp<br>féledimp | fledimp | féledimp | fledimp | féledimp |
| delemark | delemárk | delemárk | delemárk | delemárk<br>delemark | delemárk | delemárk<br>delemark |
| pitimirk | pitimírk<br>pitimirk | pitimírk | pitimirk<br>pitmírk | pitimirk | pitimirk | pitimirk |
| gendorens | gendórens<br>gendorens | gendórens | gendorens | gendorens<br>gendórs | gendorens | gendorens |
| dafonilt | dafonilt | dafonilt | dafonilt | dafonilt | dafonilt | dafonilt |
| deledirb | deledirb<br>deledírb | deledrib | deldrib | deledirb | dledirb<br>deledírb | deledirb |

As table 3 shows, the following words received initial stress by the six subjects in all cases:

bacadant, thermodint, faladent, braganist, feledished, feledisk, panarint, feledimp, dafonilt.

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There were some variations in the pronunciation of the other seven words. In general, the subjects in the A group showed a clear tendency towards assigning ultimate stress with concomitant vowel lengthening to these words, whereas the subjects in the B group tended to assign them initial stress.

One striking generalization can be drawn from an examination of the above three tables: there are no cases of final stress except in cases where the vowel in the final syllable was lengthened. The latter include the following words:

teland, scantered, dagustant, sacantamp, redeburk, fadanork, delemark, pitimirk, deledirb.

It is interesting to note in this context that all these words have either a, r, or both in the final syllable. The reason for such lengthening in some words but not in others seems to be a matter of interpretation of the English spelling system by the subject, and thus lies outside the scope of the present study.

## 3. Discussion

> ... the native language of the learner interferes in specific and predictable ways at each new step in acquiring a second language (Bolinger 1971).

> ... in the comparison between native and foreign language lies the key to ease or difficulty in foreign language learning .... Those elements that are similar to the learner's native language will be simple for him and those elements that are different will be difficult (Lado 1957: 1-2).

The essence of the Contrastive Analysis (CA) Hypothesis lies in these two statements. The strategy is to make a systematic comparison of the native and target languages, and, on the basis of this comparison, to predict learners' errors. Those aspects in which the two languages differ, and only those, will be the areas in which learners make errors, and their errors will consist of transferring the properties of the native language into the corresponding areas of the target language.



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Applied to the present study, this hypothesis predicts that Saudi students will transfer the Arabic stress pattern to English words, and thereby produce incorrect pronunciations where the stress rules of the two languages differ. By and large, stress errors made by Saudi students are accounted for in this way: e.g. éleven, dictíonary and the other examples cited in the Introduction exhibit the Arabic stress pattern, as a comparison of these forms with Arabic words of equivalent syllable structure such as kátabat, maktábati, and so on, reveals.

In addition to these errors, other instances of this interference were apparent in the present study. A long vowel in the final syllable of a word always receives primary stress in Arabic: baríd 'mail', majnún 'crazy', makán 'place', etc., but this is not always the case in English: e.g. télephone, cáravan, éxercise, éxecute. As we saw above, the subjects in this experiment consistently stressed the final syllable of a word whenever they pronounced that syllable with a long vowel, thus exhibiting the Arabic, rather than the English, stress pattern.

As we have seen, however, these subjects failed to stress word-final CVCC syllables in every case (unless the vowel was pronounced long), contrary to the Arabic stress rule. This is a clear counterexample to the CA hypothesis, since it is a case in which native and target languages differ but in which, nevertheless, the feature of the former is not transferred to the latter.

It might be objected that these subjects have mastered the English stress system to the extent that transfer from Arabic no longer occurs. But final CVCC syllables are not regularly stressless in English. In fact, there is no hard and fast rule for the stressing of such syllables: compare the words in columns (a) and (b) of (4).

(4)

| (a) | (b) |
|---|---|
| insíst | fáscist |
| excépt | áddict |
| subjéct | súbject |
| interrúpt | fréquent |
| percént | ábsent |

At best, rough generalizations can be made about stress in certain phonologically and/or morphologically-defined classes: for example, verbs tend to be finally-stressed while nouns and adjectives are not, as in the well-known noun-verb pairs like súbject-subjéct, cónduct-conduct, etc. We cannot, therefore, attribute non-stressing of final CVCC syllables on the part of the Saudi subjects to assimilation of an English rule, because no such rule exists. In addition, these students make numerous errors in stressing other English words (díctionary, etc.), and thus have not in any sense mastered English stress. Furthermore, my own informal observations indicate that students are no more likely to assign stress to the final CVCC syllables of verbs like those in column (a) of (37), where that stress would be correct, than to nouns and adjectives like those in column (b). So this generalization about English stressing of final CVCC syllables cannot have been learned by them.

Analogy with familiar English words does not offer an explanation either. Such an explanation would require that the students always analogize with words like súbject and ábsent, never with insíst and percént. Then this putative explanation becomes merely circular, with the original question replaced by that of why analogies are based only on one group of words.

We have established, then, that transfer cannot explain the pronunciation of words with final CVCC syllables by Saudi learners, nor can their knowledge of English rules or individual words. In what follows, two possible explanations will be suggested. Since both are at this point speculative, a choice between them awaits further evidence.

The first attempted explanation is based on the analysis of Arabic stress presented by McCarthy (1979). McCarthy analyzes a final CVCC syllable as a CVC syllable to which an additional consonant has been adjoined. This is illustrated in (5)(σ = syilable).

(5)

katabt 'I/you m.s. wrote'

Stress rules are assumed to be sensitive only to syllable rimes (i.e. the syllable peak plus any postvocalic consonants), since it is well-attested that syllable onsets do not influence stress placement. When the Arabic stress rule scans the rime structure shown in (5), it will be equivalent to that of a word with a CVC penult and light ultima, as in (6).

(6)

katabna 'we wrote'

That is, in each case there is a word-final rime containing one element (t in (5) and a in (6)), a penultimate rime containing two elements (ab in both (5) and (6)), and an antepenultimate rime with a single element (a). In other words, the tab in (5) is stressed for the same reason that the tab in (6) is: because it is a penultimate heavy rime.

The relevance of this analysis to the subject at hand is that the Arabic stress rule requires no reference to final syllables or rimes at all, since the final CVCC syllable receives stress because it contains a penultimate rime, not because it is a final syllable. If the Arabic stress rule then in fact contains no provision for stressing final syllables, we can see why final CVCC syllables fail to be stressed by the Saudi learners of English.

Two questions remain to be answered here. First, we must claim that final CVCC syllables in English are not analyzed, as in Arabic, like (5) by Saudi speakers, but rather are assigned the more straightforward syllabification shown in (7).

(7)


Then the final CVCC syllable of English cannot be stressed by transference of the Arabic stress rule, since the latter does not stress such syllables. In a sense we have now simply pushed our problem back one step: we must now explain why the syllabification in (5) is not transferred to English. It could be suggested that,

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since (5) is presumably a more marked syllabification of CVCC sequences than (7), Saudi learners assume the less-marked syllabification for English. It is not clear whether there are any precedents for this kind of a model in which the native language contains a structure which, being highly-marked, is not transferred to the target language, a less marked alternative replacing it.

Second, why do Saudi learners nevertheless stress English final CV̄C syllables (telepnóne, caraván, etc.)? Final CV̄C syllables in Arabic will be analyzed analogously to the CVCC syllables, as in (5) (because CV̄ and CVC are both treated as heavy syllables by the stress rules of the language; see the Introduction). They are again stressed because they contain a heavy penult, and we would expect by the same reasoning used in the CVCC case that this stress pattern would not be transferred to English. However, note that the Arabic stress rule must be able to stress long vowels in absolute word-final position, as in hayā́ 'life', katabū́ 'they wrote it', ramā́ 'he threw it', and so on. Here the analysis in (5) does not come into play. In other words, the Arabic stress rule does explicitly stress long vowels in final syllables (whether or not these syllables are closed by a consonant), and so this aspect of the stress rule will be transferred to the final syllables with long vowels in English.

The second explanation rests on the observation that only two kinds of final CVCC syllables exist in Arabic: (i) those in which the final CC cluster is a geminate, and (ii) those in which a morpheme boundary separates these two consonants. Examples of case (i) are mahā́ll 'store, place', maqā́ss 'scissors', yihíbb 'he loves'. Examples of case (ii) are katábt 'I/you m.s. wrote', jalást 'I/you m.s. sat', where -t is the 1st sg/ 2nd m.s. subject suffix. Since geminates do not exist in English, case (i) could clearly not be a source of transfer to English. There are English words conforming to type (ii), however: chápters, fínished, etc. Yet these words are not stressed finally like Arabic katábt by Saudi speakers. It could be that these students have learned that these suffixes cannot induce stress changes in English--

alternations like fínish-*finíshed would be quite unEnglish, although equivalent alternations are common in Arabic (kátab 'he wrote-katábt). Note that examples of type (ii) are found only with the suffix -t. Therefore, Saudi speakers might perceive the final stress as somehow associated with this suffix in particular, and so do not transfer it to English where this suffix is not found.

This explanation is also able to account for the consistent stressing of word-final CVC syllables in English by the Saudi subjects, whether or not that stress is correct. In Arabic, these syllables do not always have an internal morpheme boundary: kitáb 'book', makán 'place', karím 'generous', etc. are monomorphemic. Thus the Saudi students find no obstacle in transferring this stress pattern to English, sometimes resulting in errors.

Note that both explanations offered here involve some native language features which fail to be transferred to the target language: in the first case, the structure assigned to CVCC syllables, and in the second, the influence of certain morphemes on stress. Thus either case contains counterexamples to the CA hypothesis.

## 4. Conclusion

It has been shown that Saudi learners of English consistently fail to stress final CVCC syllables in English, despite the fact that such syllables are always stressed in Arabic and that transfer of Arabic stress patterns to English clearly occurs in other kinds of words. This fact represents a counterexample to the Contrastive Analysis Hypothesis. Possible explanations were offered for this lack of transfer, one based on the syllabic structure of CVCC sequences in Arabic, the other on their morphological structure.


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Appendix

| | | |
|---|---|---|
| sadent | feledisk | lodened |
| bacadant | redeburk | delemark |
| thermodint | kinterp | telandism |
| bacadart | fadanork | pitimirk |
| faladent | sledent | gendorens |
| flintelk | kilteld | dafonilt |
| frintemp | panarint | fertent |
| braganist | spinnist | deledirb |
| feledished | feledimp | kintesp |
| teland | dagustant | lodened |
| dagusters | sacantamp | telandism |
| kinters | scantered | delemark |
| gendorens | pitimirk | dafonilt |
| deledirb | fertent | kintesp |
| feledisk | sledent | redeburk |
| kinterp | spinnist | kilteld |
| fadanork | panarint | sadent |
| sacantamp | feledimp | dagustant |
| faladent | scantered | thermodint |
| feledished | bacadant | frintemp |
| dagusters | flintelk | bacadart |
| kinters | braganist | teland |



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